

What is claimed is:

1. An apparatus for detecting contaminants, said apparatus comprising:
a conduit;
a microcantilever sensor disposed within said conduit and having a surface; and
5 a molecular imprinted polymer to attract said contaminant, said polymer being coated on said surface of said microcantilever sensor;
wherein said microcantilever sensor sends a signal indicating said polymer has attracted said contaminant.
2. The apparatus as claimed in claim 1, wherein said microcantilever sensor
10 further comprises a terminal end, and wherein said surface is disposed on said terminal end.
3. The apparatus as claimed in claim 1, wherein said microcantilever sensor is one of a plurality of substantially identical microcantilever sensors, and wherein said plurality of microcantilever sensors comprise a sensor array disposed in said conduit.
- 15 4. The apparatus as claimed in claim 3 further comprising a microprocessor in communication with said sensor array, said microprocessor being programmed to process said signal and determine the presence of said contaminant based upon the processed signal.
5. The apparatus as claimed in claim 3 further comprising a second sensor array,
20 and wherein said second sensor array is fabricated to attract a separate contaminant than said sensor array.
6. The apparatus as claimed in claim 5 further comprising a microprocessor in communication with said sensor array and said second sensor array, said microprocessor

being programmed to process said signal and determine the presence of at least one contaminant detected by said sensor array or said second sensor array based on said processed signal.

7. A sensor for detecting the presence of at least one contaminant using molecular imprinted polymers, said sensor comprising:

a microcantilever sensor having a surface; and

a matrix of synthesized polymers coating said surface;

wherein said matrix forms a molecular imprinted polymer fabricated to attract a specific contaminant, and wherein said microcantilever sensor detects the presence of said contaminant attracted to said matrix.

8. The sensor as claimed in claim 7, wherein said microcantilever is one of a plurality of substantially identical microcantilever sensors, and wherein said plurality of microcantilever sensors form a sensor array.

9. A method for detecting at least one contaminant comprising the steps of:

providing a conduit having a microcantilever sensor;

disposing said conduit in an environment to be monitored;

coating a surface of said microcantilever sensor with a molecular imprinted polymer matrix;

attracting a plurality of target molecules to said matrix such that said plurality of molecules is bonded to the molecular imprinted polymer; and

detecting at least one contaminant base on said microcantilever sensor's reaction to said molecules bonded to said polymer;

wherein a specified contaminant is detected in said environment.

10. The method as claimed in claim 9, wherein said environment is selected from the group consisting of an aqueous flow, an atmosphere, and a bodily fluid.

11. The method as claimed in claim 9 further comprising the step of depositing said microcantilever sensor in a sensor array, said sensor array comprising a plurality of substantially identical microcantilever sensors.

12. The method as claimed in claim 11 further comprising the step of including a second sensor array, said second sensor array comprising a plurality of microcantilever sensors fabricated to recognize a second contaminant.

13. The method as claimed in claim 12 further comprising the steps of processing a signal from said sensor array and said second sensor array and determining which contaminant has been detected based on said signal.